

10 Our Plan - An Overview

Sustainable Maintenance

Outline

Our assets were classified by OFWAT in 2007/8 as being of “stable serviceability”. Our own assessment is they are borderline for infrastructure assets. There are signs that currently funded investment levels will lead to deterioration.

A significant increase in planned maintenance for both underground and above ground assets could be justified by a simplistic move to more systematic replacement programmes. We believe a more targeted approach is preferable and have developed our own industry-leading software tool to maximise the benefit of mains replacement expenditure.

Including some significant periodic repairs to the raw water network, we have determined that the optimum position is to double the level of infrastructure maintenance expenditure. This gives an indication of the previous restriction to investment as it still implies an average mains life of 100 years. Approximately half of the overall increase has been allocated as Supply/Demand expenditure to reflect the contribution the planned works make to leakage reduction. Also importantly it minimises the effect on prices, which would be some 6% higher if this cost was allocated to Infrastructure Maintenance.

Our detailed analysis using Reliability Centred Maintenance methodologies demonstrates a need to increase non-infrastructure maintenance by a quarter. This only allows partial catch up for effects of restricted spending in previous periods. We estimate we could save significant power costs and carbon footprint by an accelerated programme of pump replacement. These are excluded from our plan to gain the optimum position for minimising prices to customers.

Expenditure	5 years 2005-10	2010/ 2011	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015	5 years 2010-15
Infrastructure	£52m	£12m	£14m	£14m	£16m	£18m	£73m
Non-infrastructure	£41m	£13m	£17m	£14m	£8m	£6m	£58m
Total expenditure	£93m	£25m	£31m	£27m	£23m	£24m	£131
Included in Base position	(£93m)	(£18m)	(£18m)	(£19m)	(£19m)	(£19m)	(£93m)
Increase over Base	-	£7m	£13m	£9m	£4m	£5m	£38m

All figures in 2007/8 values, rounded to nearest £m

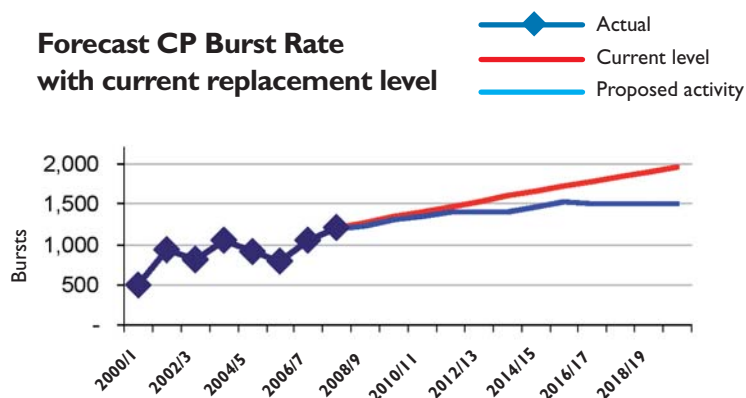
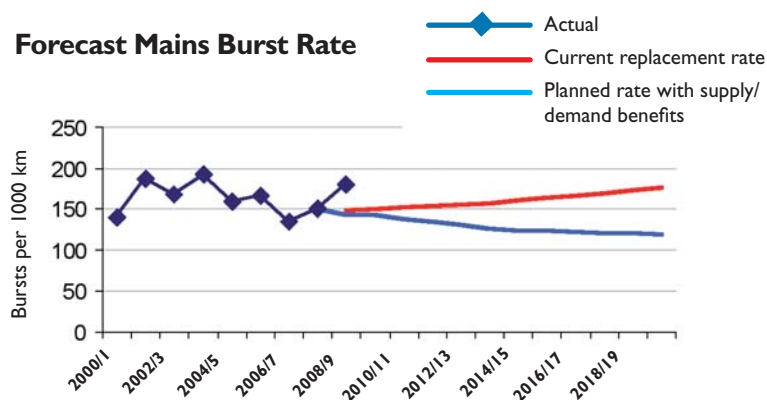
This table shows the position after £29m allocated to Supply Demand.

Regulatory challenge

When the current regulatory system was adopted some 20 years ago the company was deeply concerned at the level of its borrowings and was one of only a few companies to issue additional share capital. As a result our capital spending has always been subjected to very strict control. The subsequent regulatory methodologies put us at a disadvantage, when needing to increase expenditure from a low base, relative to companies with larger but stable programmes.

We have always submitted proposals that have been carefully considered by management and the Board. Initial operational management proposals based on assessments of what needs to be done have been scaled down during extensive review sessions until we settled on the current proposals. As a result there is considerable deferred expenditure that will need to be urgently addressed in the 2014 price review.

The size of our business means we have an intimate knowledge of our assets and their performance. Prior capital expenditure restrictions have generated a culture of “trying to make do”. This philosophy, which has led to Bristol Water investing at only two thirds of the industry average, will continue until we can clearly demonstrate benefits to the customer by investing more. We believe such evidence is now available. We expect maintenance levels beyond the next period to broadly stabilise at the levels now proposed and so having less impact on price increases after 2015.



Scheme details

Infrastructure Maintenance

Expenditure on infrastructure maintenance during 2005-10 is forecast to be £52m in 2007/8 prices. The next table shows how significantly expenditure needs to increase in some important areas:

Key projects:	2005 – 10	2010 – 2015	Deferred
Mains & CP replacements:			
Total Cost	£28m	£64m	£71m
Allocated to Supply/Demand	-	(£29m)	(£29m)
Net cost to Infrastructure Maintenance	£28m	£35m	£42m
Aqueducts	£3m	£9m	£5m
Raw water mains	£2m	£7m	£17m
Reservoirs	£3m	£6m	£6m

To simply maintain serviceability a minimum mains replacement rate of 60km pa (0.9% pa) is required. The cost benefit analysis undertaken as part of our Water Resources Plan has shown that taking into account the benefits of reductions in leakage and numbers of interruptions, the optimal replacement rate of mains is 67km pa (1.0% pa). This level of replacement will lead to a small improvement in serviceability. We plan to replace 67km pa with appropriate costs allocation to other investment categories.

Our analysis also showed that the best approach for replacing communication pipes is to do so alongside mains replacement and by targeting poorly performing districts. The optimal level for replacement was identified as 4,388 per annum.

The cost of mains and communication pipe replacement charged to Infrastructure Maintenance will increase from £28m in the current period to £35m between 2010 and 2015.

Importance of Mains Replacement

Without sufficient replacement of mains:

- leakage will increase due to deterioration of pipes and increased numbers of bursts
- the number of unplanned interruptions arising from burst mains will increase, adversely affecting customer service

Increasing mains replacement from 0.4% pa to 1.0% pa is calculated to deliver:

- a leakage reduction of 0.8 MI/d by 2015
- a reduction in interruptions over 6 hours by 14% from the current level

Infrastructure maintenance – raw water assets

A detailed survey of our Line of Works raw water aqueduct has identified the need for significant maintenance works. This is the sole means of getting Chew Reservoir water to Barrow for treatment and has now been in operation for over 160 years. In addition the raw water main between Cheddar Reservoir and Barrow needs replacing because of high burst rates. Expenditure is also required to prevent embankment leakage at Barrow No.3 Reservoir.

To balance the maintenance needs with the impact on customers' bills we plan to undertake these works over the 10 years leading up to 2020, but still incurring expenditure of £9m during 2010 - 2015. With only £3m being spent on the scheme in the current period, the increase clearly requires inclusion as an exceptional item in OFWAT's CIS review.

Non-Infrastructure Maintenance

Expenditure on non-infrastructure maintenance during 2005-10 is forecast to be £41m in 2007/08 prices. Increased expenditure is required in the following areas:

Key projects:	2005-10	2010-2015	Deferred
Pumping stations	£5m	£13m	£13m
Meter replacement	£2m	£4m	£4m
Software systems	-	£11m	£9m

Maintenance expenditure on pumping stations over the last ten years has been low at less than 2% of the pump asset values each year (implying an unrealistic theoretical life of over 60 years). We have undertaken a detailed investigation of the performance and risks associated with our pumping plant using Reliability Centered Maintenance methodologies. This has identified a now pressing need for replacement/refurbishment at a large number of sites over the next five years. These replacements will lead to reductions in power use as well as increased reliability. Major pumping stations at Axbridge, Blagdon and Victoria, key parts of our network, will be refurbished during the period – together accounting for 12% of the installed pumping capacity.

The increase in rate of meter replacement reflects the increasing number of metered customers. We expect to replace 40% of our meter stock by 2015, which we assume has an average working life of 13 years.

During 2010-2015, following an extended period of low expenditure, we need to significantly upgrade or replace our billing system (in conjunction with our joint billing partner Wessex Water), together with our works management system, knowledge management systems and GIS.

We anticipate that maintenance expenditure on treatment works, service reservoirs, telemetry, IT equipment and transport will remain similar to investment levels during the current period.

Total non-infrastructure maintenance spend during the period 2010 to 2015 is forecast at £58m compared to £41m in the current period.

Importance of increased maintenance on pumps

Over 30% of our pump capacity is over 25 years old. Although subject to regular preventative maintenance, without a significant replacement and refurbishment programme the performance of these pumps will deteriorate in terms of numbers of failures and energy efficiency.

Increasing the rate of replacement activity from the current very low levels will by 2015 result in a 7,000 MWhr reduction of energy consumption each year, reducing emissions by 3,760 tonnes of CO₂. This will be partly offset by increases in energy use elsewhere (for instance, with enhanced treatment systems) but still drives a net reduction in CO₂ emissions.

Summary

A sustainable level of planned maintenance is vital to enable our wide range of assets to deliver the outputs required of them on a reliable basis. In recent years we have held down the level of expenditure as far as possible. An increase in expenditure is needed both for exceptional items (which we have spread beyond 2015 as much as possible) and for mains replacement to a level that will not result in customer service deterioration. There is a 7% impact on customer charges.

Sustainable maintenance	2010/11	2011/12	2012/13	2013/14	2014/15	5 years
Capex (above Base)	£7m	£13m	£9m	£4m	£5m	£38m
Opex change	-	-	-	-	-	-
K factor needed	4%	1%	1%	1%	-	7%
Increase in average household bill	£6	£2	£1	£1	£1	£10

All figures in 2007/8 values, rounded to nearest unit

